

REMARKS

This Amendment is fully responsive to the final Office Action dated November 25, 2008, issued in connection with the above-identified application. A petition for a three-month extension of time and a request for continued examination (RCE) accompany this Amendment. Claims 1, 5 and 6 were previously pending in the present application. With this Amendment, claim 1 has been amended; and claims 5 and 6 have been canceled without prejudice or disclaimer to the subject matter therein. Accordingly, claim 1 is now the only claim pending in the present application. No new matter has been introduced by the amendments made to the claims. Favorable reconsideration is respectfully requested.

In the Office Action, the Examiner alleges that claims 5 and 6 are drawn to a non-elected invention, which was elected in the reply filed on August 29, 2009. Accordingly, claims 5 and 6 have been canceled herein, as requested by the Examiner.

In the Office Action, claim 1 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshino et al. (U.S. Patent No. 5,419,948, hereafter "Yoshino") in view of Yasuhara et al. (U.S. Patent No. 6,221,179, hereafter "Yasuhara") and Gabriel et al. (U.S. Patent No. 5,489,179, hereafter "Gabriel"). The Applicants have amended independent claim 1 to help further distinguish the present invention from the cited prior art. Claim 1 (as amended) recites the following features:

"[a] screw or a tapping screw made of steel with an ultra fine structure of ferrite grains having a 1 μ m or less average grain size and a nitride layer in a surface part, wherein the nitride layer in the surface part has a 100 μ m or less thickness, hardness of the nitride layer of the surface part is 563 or more in Vickers hardness, ferrite in the vicinity of the nitride layer has a 1 μ m or less average grain size, ferrite of a core part has a 3 μ m or less, and hardness of the core part is 199-345 in Vickers hardness." (Emphasis added).

The features emphasized above in independent claim 1 are fully supported by the Applicants' disclosure. Specifically, the upper value of ferrite grains, 1 μ m, is disclosed on page 5 of the specification (see examples). The lower value of hardness of the nitride layer of the surface part, 563 in Vickers hardness, is disclosed on page 7 of the specification, Table 2, (see

example 2). Finally, the upper value of hardness of the core part, 345 in Vickers hardness, is disclosed on page 7 of the specification, Table 2 (see example 4).

In the Office Action, the Examiner relies on the combination of Yoshino, Yasuhara and Gabriel for disclosing or suggesting all the features of independent claim 1. However, the Applicants assert that the cited prior art fails to disclose or suggest the features now recited in independent claim 1, as amended. In particular, a screw or tapping screw having an ultrafine structure of ferrite grains, wherein the thickness of a nitride layer of a surface part and a hardness balance *between* the surface part and the core part (as recited in claim 1) are not disclosed or suggested by the cited prior art.

Neither Yoshino nor Yasuhara discloses or suggests a screw or tapping screw having an ultrafine structure of ferrite grains with the thickness of a nitride layer of a surface part and a hardness balance *between* the surface part and the core part, as recited in claim 1 (as amended).

Moreover, Gabriel fails to overcome the deficiencies noted above in Yoshino and Yasuhara. Gabriel discloses a fastener having a core hardness of 40 to 45 Rockwell C and a surface hardness of 42 to 50 Rockwell C. 40 to 45 Rockwell C converts to 388 to 447 in Vickers hardness and 42 to 50 Rockwell C converts 410 to 515 in Vickers hardness. Thus, a comparison of claim 1 with Gabriel on hardness is as follows:

Hardness (Vickers hardness) Claim 1		
Gabriel		
Core part	199-345	388-447
Surface part	563-	410-515


As is clear from the comparison, the respective hardness range of a core part and a surface part does not overlap between Gabriel and claim 1. Therefore, the hardness balance of claim 1 could not be accomplished by the combination of Yoshino, Yasuhara and Gabriel. Thus, the present invention (as recited in independent claim 1) provides a more useful screw or tapping screw than provided by the prior art.

Based on the above discussion, no combination of Yoshino, Yasuhara and Gabriel would result in, or otherwise render obvious, independent claim 1 (as amended).

In light of the above, the Applicants respectfully submit that all the pending claims are patentable over the prior art of record. The Applicants respectfully request that the Examiner withdraw the rejection presented in the outstanding Office Action, and pass the present application to issue. The Examiner is invited to contact the undersigned attorney to resolve any remaining issues.

Respectfully submitted,

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May 26, 2009